tools of the trade

(l-r) ClarkCable™ Wire Identifier and Wirefish™

Straightening Up

If you've ever had to unplug your keyboard, mouse, speakers, or any USB connection, you know the challenge of cable bingo. Unplug more than one line at a time, and the game's begun. **Clark Cable™** has a set of reusable plastic tags that attach to the wires to keep your scanner separate from your printer. There are six different color tags per card along with 12 labels with printed icons for the most common connections and four that are blank to write your own labels. The tags are a little more than 1½ inches wide, so they are easily visible in the tangle that's at the back of most desk-

tops. And while you're at it, the same company offers a wire manager device called the **Wirefish™** for creating some semblance of order from the many cables flowing out the back of your computer (or stereo or home entertainment system). The Wirefish is actually a clamp that prevents the tangle by holding the wires neatly in line. There are two per package, one four inches wide and one six inches. And once

you've labeled and clamped all the wires, don't forget to vacuum up those dust bunnies back there. If the fan in your computer is drawing in any of that dust, that's not going to help the circuits in the box. Information on both products is at www.zelco.com.

A KVM switch lets you connect more than one computer to the same monitor (V) and lets you control the computers with a single keyboard (K) and mouse (M). When you upgrade to a new computer, you can keep the old desktop and connect both machines to the same monitor and keyboard. Small businesses can give convenient control of two or more computers to the

same operator at the same desk. The **SwitchView USB 4-port Switch** from **Avocent Corporation** goes one step further as integrated USB hub and KVM switch. The SwitchView will let you share peripherals among multiple computers. It uses a single keyboard, monitor, and mouse to control up to four attached computers, and you can share access to multiple USB devices such as a digital camera, external hard drive, external CD-ROM, printer, scanner, or PDA. Also, all the computers can share one set of speakers and microphone. You switch back and forth between the different computers either with a push-button control on the box or with hotkey commands on the keyboard. www.avocent.com

Quality Prints

Hi-Touch Imaging Technologies has introduced the **HiTi 640PS** direct digital printer. Direct means you don't need a

SwitchView KVM Switch

Infinite Patience ◆ Michael Castelluccio, Editor

■ One federal agency's stodgy definition of a password is "a protected character string used to authenticate the identity of a computer system user or to authenticate access to system resources." (Federal Information Processing Standards PUB 181.) The average user is more likely to see it as the "Open, Sesame" that gets you into the machine's digital cave.

The difference between a good password and a bad one is a matter of patience—usually lack of patience on the part of the human user and the endless patience of computers. Because good passwords are hard to come up with and even harder to memorize, most people opt for the simple and memorable. A pet's name and your age sounds pretty good. It has letters and numbers, and you won't forget it.

Actually, Boots37 is a terrible password. Crackers use robotic programs to try endless lists of possibilities, and Boots just doesn't cut it. It has a word that appears in the dictionary (a definite no-no), and it wouldn't take long for a password cracker to discover the last two characters.

Even with more robust passwords, there are programs that will rapidly search different combinations for hours or days, even months if it takes that long—just keep the computer plugged in and you'll never sense so much as a sigh from its circuitry. Robots are tireless, and they just never get bored.

So, What's Good?

Password crackers use dictionary searches, so words or

HiTouch's HiTi640PS

computer—there are two slots for digital camera memory cards, and the printer reads Compact-Flash, SmartMedia, Memory Stick, Secure Digital, Multimedia, and IBM Micro Drive cards. Image editing is done on a controller that allows cropping, rotating, resizing, contrast/brightness and hue/saturation controls, as well as auto setting choices. The prints are produced by a dye diffusion thermal transfer method in which three separate layers of color (yellow, magenta, and cyan) are heat set beneath a final, clear protective coating. This produces up to 16.77 million true colors in a 403 × 402 dpi resolution. To get an equivalent quality in an inkjet, you would need 6,400 dpi. The prints are 4" × 6", and you can also get sticker prints in 1" × 1", 4" × 4", and 4" × 2" size. You can choose matte or glossy print surfaces with the controller. www.hitouchimaging.com

Quality Sound

If the sound on your laptop or PC is lagging behind your DVD or Satellite radio technologies, **Audiotrak® USA** has a solution. The **OPTOPlay** is a USB plug-in that will upgrade your system by producing high-definition digital audio and virtual surround sound. The Dolby Headphone Technology creates the sound of five-speaker surround-sound playback on your stereo headphones that's 24-bit 96 kHz professional quality audio. There is a built-in headphone amp for analog output as well as optical digital output for MiniDisc recorders and other digital devices. OPTOPlay enhances bass playback and provides SRS Dialog Clarity for clear playback of recorded voices. The OPTOPlay doesn't require special dri-


AudioTrak OPTOPlay

vers, so there's no need to load software on your computer; just plug into a USB port, and attach your headphones. The OPTOPlay is the portable single-connection version of several Audiotrak sound-enhancement plug-ins—other models feature multiple outlets (six and eight). Information on the complete line is available at www.audiotrak.net.

phrases like "Open, Sesame" are no good—not even spelled backwards. And numbers shouldn't be used in recognizable sequences like 12345 or 10987. Longer passwords are better than shorter—say a minimum of seven characters—and mix in a few keyboard symbols with the alphanumeric characters. Alternate upper and lower cases, stir, and you'll get something like: LRZ&BM!xY, or bvw16Jse#, or ON3FrgePx. All good solid passwords (they were created by a computerized password generator), but how are you supposed to memorize these things?

How about something like: nGng2+Ths1? It has all the elements of the previous three, but it's much easier to remember because buried in it is the challenge: n(ot) G(oi)ng 2(to) + (add) Th(i)s 1(one). The key is coming up with something you recognize that others might not see as easily.
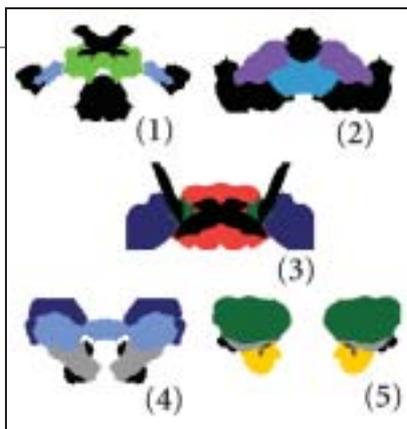
You can find an exotic example of this principle of personalization on the Microsoft research pages online at http://research.microsoft.com/displayArticle.aspx?id=417. There you will find the explanation of an experiment with inkblot passwords. Using a computer program to generate inkblots like the ones above, the researchers printed 10 of them on a page and asked people to write a short abbreviation of what they saw in each design. Naturally, not everyone saw and described the same thing. Then each subject was asked to take the first letter and last letter of each description and arrange the five pairs into a 10-letter string. That was the password.

For instance, figure (1) sort of looks like a kid falling through a green object, so you might write *falling boy*. Those letters would be **fb**. The second is, perhaps, an *exercising giant*. The letters would be **eg**. The first four letters in the string, then, would be **fbeg**.

What's so unusual about the process is how the memory of the person's description persisted. After writing the phrases several time, and in different orders, a final order was memorized and the strong password created. In the Microsoft study, 20 out of 25 people remembered their password the next day, and 18 out of 25 remembered it a week later.

Now, you may not be ready for

cheat sheets of ink blots, but there's a potential here for environments where passwords have to be strong and changed often. Even if someone caught a glimpse of your inkblots on your bulletin board, it's not likely they would be able to guess how you described each picture.

For now, there's a time-tested memory trick that you can use to create highly personalized strong passwords. Remember the mnemonics you used in school? Maybe it was a biology teacher trying to get you to memorize the classifications: Kingdom, Phylum, Class, Order, Family, Genus, Species. That became the sentence: King Philip came over for ginger snaps. Or the music notes that go on the lines (EGBDF) that you learned with: Every good boy deserves fudge. Mnemonic sentences often sound foolish, but that's part of how they work.

Translate the process to passwords, and you can make keys like SF(_)Mrpp. This string of 11 characters should take quite a while to crack, but it's very easy to remember. It's an abbreviation of the nonsensical statement: **S**oluble **F**ish **(_)** **M**ake **r**eally **p**oor **p**ets. I included the empty fish bowl, made out of a left parenthesis, space, underline, space, right parenthesis, to add five apparently meaningless symbol characters to harden the key. Remember, the longer the key, the better it is.

If you don't like sentences, you can create abbreviated lists. A personal signature could include a head-to-toe inventory beginning with hat size and hair color. A favorite meal of several courses or steps in changing a tire or knitting a mitten—the possibilities are endless. And it's a good thing because computers loaded with password-cracking programs don't need sleep and never give up. ■